



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/617,667	07/14/2003	Jun Sumino	67161-068	4737
20277	7590	07/22/2005	EXAMINER	
MCDERMOTT WILL & EMERY LLP 600 13TH STREET, N.W. WASHINGTON, DC 20005-3096				PRENTY, MARK V
			ART UNIT	PAPER NUMBER
			2822	

DATE MAILED: 07/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

3M

Office Action Summary	Application No.	Applicant(s)	
	10/617,667	SUMINO ET AL.	
	Examiner	Art Unit	
	MARK V. PRENTY	2822	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 11 July 2005.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1 and 3-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1 and 3-10 is/are rejected.
- 7) Claim(s) 1 and 3-10 is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date: _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date: _____ | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| | 6) <input type="checkbox"/> Other: _____ |

This Office Action is in response to the amendment filed on July 11, 2005.

Amended independent claims 1 and 9 are objected to for reciting "a silicon insulating film" because silicon is not an insulating film. Claims 3-8 and 10 depend on independent claim 1 and are thus similarly objected to.

Claims 1 and 3-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, amended independent claims 1 and 9 are indefinite because "said gate insulating film" lacks antecedent basis (independent claim 9 recites "said gate insulating film" three times). Claims 3-8 and 10 depend on independent claim 1 and are thus similarly rejected.

Claims 1 and 3-8 are rejected under 35 U.S.C. 102(e) as being anticipated by Kim et al. (already of record United States Patent 6,620,681 – hereafter Kim).

With respect to independent claim 1, Kim discloses a semiconductor device (see the entire reference, particularly the Fig. 2H and Fig. 3 disclosure) comprising: a semiconductor substrate 100, having a main surface, in which first and second trenches 109 (Fig. 2C) are formed in said main surface at a distance away from each other; first and second isolation insulating films 124 filling in said first and second trenches; a [gate] insulating film 101/102, formed on said main surface located between said first isolation insulating film and said second isolation insulating film, including silicon (see column 5, lines 36-40), having an end portion in a birds beak form (Fig. 3's "a") which brings into contact with said first isolation insulating film and said second isolation insulating film, respectively, having a first top surface; and a silicon film 103/104 formed on said gate

insulating film, having a thickness exceeding 0 and being less than 50 nm (see column 5, lines 52-55) in an intermediate portion between said first isolation insulating film and said second isolation insulating film, and being thinner than said thickness on said end portion (see Fig. 3); and a conductive film 126 (Fig. 2H), including silicon (see column 8, lines 45-58), located on and connected to said silicon film 103/104.

Claim 1 is thus rejected under 35 U.S.C. 102(e) as being anticipated by Kim.

With respect to dependent claim 3, each of Kim's first and second isolation insulating films 124 has a second top surface, and the distance from said main surface to said second top surface (i.e., the total thickness of Fig. 2F's layers 102/104/106/108, which are derived from Fig. 2A's layers 101/103/105/107, respectively), is at least 20nm (see the Fig. 2A disclosure).

Claim 3 is thus rejected under 35 U.S.C. 102(e) as being anticipated by Kim.

With respect to dependent claim 4, each of Kim's first and second isolation insulating films 124 has a second top surface, and the distance from said main surface to said second top surface (i.e., the total thickness of Fig. 2F's layers 102/104/106/108, which are derived from Fig. 2A's layers 101/103/105/107, respectively) is at least the sum of the thickness of said gate insulating film 101/102 and said silicon film 103/104.

Claim 4 is thus rejected under 35 U.S.C. 102(e) as being anticipated by Kim.

With respect to dependent claim 5, the thickness of Kim's conductive film 126 is at least 50nm and at most 200nm (see column 8, lines 45-50).

Claim 5 is thus rejected under 35 U.S.C. 102(e) as being anticipated by Kim.

Art Unit: 2822

With respect to dependent claim 6, each of Kim's first and second isolation insulating films 124 has a second top surface, and said conductive film 126 is formed to cover at least part of said second top surface (see Fig. 2H).

Claim 6 is thus rejected under 35 U.S.C. 102(e) as being anticipated by Kim.

With respect to dependent claim 7, each of Kim's first and second isolation insulating films 124 has a second top surface, and the distance from said main surface to said second top surface is greater than the distance from said main surface to said first top surface.

Claim 7 is thus rejected under 35 U.S.C. 102(e) as being anticipated by Kim.

With respect to dependent claim 8, Kim's silicon film 103/104 includes phosphorous (see column 5, lines 52-57).

Claim 8 is thus rejected under 35 U.S.C. 102(e) as being anticipated by Kim.

The applicants' argument with respect to the maintained rejection (see the applicant's response at page 6, first paragraph) is incorrect. Specifically, the applicants' argument: "Specifically, the semiconductor device defined in claim 1 comprises a silicon film (Element 4 in Fig. 1) having a thickness exceeding 0 and less than 50 nm. Kim et al. do not disclose a semiconductor device having a corresponding silicon film identically corresponding to that claimed. Rather, the silicon film 103 disclosed by Kim et al. has a thickness between 20 nm and 150 nm, e.g., 50 nm. These ranges are not identical, i.e., they do not coincide. Accordingly the rejections under 35 U.S.C. § 102 for lack of novelty cannot stand, because 35 U.S.C. § 102 requires that the claimed invention be **identically disclosed in the prior art**," (emphasis in original), is incorrect,

particularly to the extent it suggests Kim's disclosed silicon film thickness range must be "identical" to claim 1's recited silicon film thickness range in order for Kim to anticipate claim 1 under 35 U.S.C. §102.

The applicants' cite *Minnesota Mining and Kloster Speedsteel* in support of their "identically disclosed" argument, but fail to explain how those cases supposedly support their argument, and a reading of those cases finds no such support. Furthermore, those cases are hardly on point insofar as the 35 U.S.C. §102 rejections therein were overturned because the prior art did not disclose **any** range, not because the claimed and prior art ranges were not "identical."

In any event, the applicants' "identical" argument is incorrect. See MPEP 2131.03 (II).

United States Patent Application Publication 2005/0139908 is related to this application.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

Art Unit: 2822

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Registered practitioners can telephone the examiner at (571) 272-1843. Any voicemail message left for the examiner must include the name and registration number of the registered practitioner calling, and the Application/Control (Serial) Number. Technology Center 2800's general telephone number is (571) 272-2800.

Mark Prenty
Mark V. Prenty
Primary Examiner